What is claimed is:

1.   A method of facilitating completion of a task by a computer-based system, the task being requested by a user or an application on the computer-based system, the task being associated with a set of recipes, each of the recipes being associated with a set of acts and a set of constraints, the recipe defining the manner of execution of acts for the completion of the task, each of the acts being associated with a set of parameters, each of the parameters being associated with a set of modalities, the modality being a communication channel between the user and the computer-based system, the method comprising:

providing confidence measures for the recipes, the acts and the parameters associated with the task;

identifying a suitable act to be executed using the provided confidence measures, the suitable act being identified for facilitating the completion of the task;

executing the suitable act;

receiving a user response to the executed suitable act;

updating the confidence measures in accordance with the user response; and

repeating the identifying to updating steps until the task is completed.

2.   The method as recited in claim 1 wherein providing the confidence measures for the recipes, the acts and the parameters comprises:

calculating a confidence measure for each parameter;

calculating a confidence measure for each act using the confidence measures for the set of parameters associated with the act; and

calculating a confidence measure for each recipe using the confidence measures for the set of acts associated with the recipe.

3. The method as recited in claim 2 wherein the calculation of confidence measure for each parameter comprises:

estimating accuracies of the set of modalities associated with the parameter;

estimating probabilities of the usage of the set of modalities associated with the parameter; and

calculating the confidence measure for the parameter using the estimated accuracies and the estimated probabilities.

4. The method as recited in claim 2 wherein confidence measure for each act is calculated using the confidence measures for the set of parameters associated with the act and the probability of the act being executed successfully.

5. The method as recited in claim 2 wherein the confidence measure for each recipe is calculated using the confidence measures for the set of acts associated with the recipe and the set of constraints associated with the recipe.

6. The method as recited in claim 1 wherein the confidence measures are calculated using one or more from a group consisting of user preferences, application specific preferences and context specific issues.

7. The method as recited in claim 1 wherein identifying the suitable act comprises:

selecting a suitable recipe, the suitable recipe being a recipe with the highest confidence measure, the suitable recipe being selected from the set of recipes associated with the task;

selecting the suitable act, the suitable act being an act with the highest confidence measure, the suitable act being selected from the set of acts associated with the suitable recipe;

selecting a suitable parameter, the suitable parameter being a parameter with the highest confidence measure, the suitable parameter being selected from the set of parameters associated with the suitable act;

selecting a suitable modality, the suitable modality being a modality with the highest confidence measure, the suitable modality being selected from the set of modalities associated with the suitable parameter; and

repeating the sub-steps of selecting a suitable parameter to selecting a suitable modality until all the parameters within the set of parameters associated with the suitable act are selected.

8.   The method as recited in claim 1 wherein updating the confidence measures comprises:

modifying the confidence measures for the set of parameters associated with the suitable act based on the observed user response;

modifying the confidence measure for the suitable act using the modified confidence measures for the set of parameters associated with the suitable act; and

modifying the confidence measure for the recipe associated with the suitable act using the modified confidence measure for the suitable act.

9.   The method as recited in claim 1 further comprising storing the updated confidence measures for future use.

10. The method as recited in claim 1 further comprising:

evaluating the user response to the executed act; and

modifying a formulation for the confidence measure calculation based on the evaluation, the formulation being the formulas for the calculation of the confidence measures.

11. The method as recited in claim 10 wherein modifying the formulation for the confidence measure calculation is performed using a machine learning mechanism.

12. A computer program product for use with a computer, the computer program product comprising a computer usable medium having a computer readable program code embodied therein for facilitating completion of a task, the task being requested by a user or an application on the computer-based system, the task being associated with a set of recipes, each of the recipes being associated with a set of acts and a set of constraints, the recipe defining the manner of execution of acts for the completion of the task, each of the acts being associated with a set of parameters, each of the parameters being associated with a set of modalities, the modality being a communication channel between the user and the computer-based system, the method comprising:

providing confidence measures for the recipes, acts and parameters associated with the task;

identifying a suitable act to be executed using the provided confidence measures, the suitable act being identified for facilitating the completion of the task;

executing the suitable act;

receiving user response to the executed suitable act;

updating the confidence measures in accordance with the user response; and

repeating the identifying to updating steps steps until the task is completed.

13. The computer program product as recited in claim 12 wherein the computer program code performing the step of providing the confidence measures for the recipes, the acts and the parameters comprises a computer program code for performing the sub-steps of:

calculating a confidence measure for each parameter;

calculating a confidence measure for each act using the confidence measures for the set of parameters associated with the act; and

calculating a confidence measure for each recipe using the confidence measures for the set of acts associated with the recipe.

14. The computer program product as recited in claim 12 wherein the computer program code performing the step of identifying the suitable act comprises a computer program code for performing the sub-steps of:

selecting a suitable recipe, the suitable recipe being a recipe with the highest confidence measure, the suitable recipe being selected from the set of recipes associated with the task;

selecting the suitable act, the suitable act being an act with the highest confidence measure, the suitable act being selected from the set of acts associated with the suitable recipe;

selecting a suitable parameter, the suitable parameter being a parameter with the highest confidence measure, the suitable parameter being selected from the set of parameters associated with the suitable act;

selecting a suitable modality, the suitable modality being a modality with the highest confidence measure, the suitable

modality being selected from the set of modalities associated with the suitable parameter; and

repeating the sub-steps of selecting a suitable paremeter to selecting a suitable modality until all the parameters within the set of parameters associated with the suitable act are selected.

15.   The computer program product as recited in claim 12 wherein the computer program code performing the step of updating the confidence measures comprises a computer program code for performing the sub-steps of:

modifying the confidence measures for the set of parameters associated with the suitable act based on the observed user response;

modifying the confidence measure for the suitable act using the modified confidence measures for the set of parameters associated with the suitable act; and

modifying the confidence measure for the recipe associated with the suitable act using the modified confidence measure for the suitable act.

16.   A system suitable for facilitating completion of a task, the task being associated with a set of recipes, each of the recipes being associated with a set of acts and a set of constraints, each of the acts being associated with a set of parameters, each of the parameters being associated with a set of modalities the system being connected to at least one modality for user interaction, the system comprising:

a modality resource monitor for monitoring the various modalities;

a task modeler comprising models for all the tasks, the model for a task comprising the recipes, the acts, the parameters, the modalities and the associations;

a confidence measure extractor connected to the modality resource monitor and the task modeler, the confidence measure extractor providing confidence measures for all the recipes; and

a dialog manager connected to the confidence measure extractor and the task modeler, the dialog manager selecting a suitable act using the confidence measures for facilitating the completion of the task, the suitable act being an act with the highest confidence measure.

17.   The system as recited in claim 16 wherein the modalities comprise one or more from the group consisting of a keyboard, a speech recognition system, a mouse, a joystick, a monitor and a touch-screen.

18.   The system as recited in claim 16 wherein the confidence measure extractor comprises a post evaluation module for modifying and storing a formulation for the confidence measure calculation based on the user responses.

19.   The system as recited in claim 18 wherein the post evaluation module employs a machine learning mechanism that modifies the formulation for the confidence measure calculation using one or more from a group consisting of user preferences, application specific preferences and context specific issues.

20.   A method of facilitating completion of a task by a computer-based system, the task being requested by a user or an application on the computer-based system, the task being associated with a set of recipes, each of the recipes being associated with a set of acts and a set of constraints, the recipe defining the manner of execution of acts for the completion of the task, each of the acts being associated with a set of parameters, each of the parameters being

associated with a set of modalities, the modality being a communication channel between the user and the computer-based system, the method comprising:

a. providing confidence measures for the recipes, acts and parameters associated with the task;

b. selecting a suitable recipe, the suitable recipe being a recipe with the highest confidence measure, the suitable recipe being selected from the set of recipes associated with the task;

c. selecting the suitable act, the suitable act being an act with the highest confidence measure, the suitable act being selected from the set of acts associated with the suitable recipe;

d. selecting a suitable parameter, the suitable parameter being a parameter with the highest confidence measure, the suitable parameter being selected from the set of parameters associated with the suitable act;

e. selecting a suitable modality, the suitable modality being a modality with the highest confidence measure, the suitable modality being selected from the set of modalities associated with the suitable parameter; and

f. repeating the sub-steps d – e until all the parameters within the set of parameters associated with the suitable act are selected.

g. executing the suitable act;

h. receiving user response to the executed suitable act;

i. updating the confidence measures in accordance with the user response; and

j. repeating the steps b – i until the task is completed.